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Patents and University Research

By ARCHIE M. PALMER *

PATENTS are usually fortuitous byproducts of research. They are not necessarily the conscious or inevitable end-results of scientific investigation. This is particularly true of the products of research on the university campus. Concerned primarily with the discovery of new ideas and the understanding of nature and its laws, many scientists working in university laboratories are content to pursue their investigations without much thought of the practical application of the results. The discovery and development of patentable inventions are not conscious objects of their research efforts.

However, many new ideas, discoveries and inventions, the result of experiments undertaken with quite a different purpose in view may have valuable commercial application or require protection and control in the public interest. They may be not only essential to scientific and technological progress and to cultural and social advancement, but also basic to industrial development and expansion. The protection and control provided under the patent laws may have to be invoked to obtain the greatest public benefit and usefulness from these products of scientific research.

Interest in Scientific Research

Interest in science and scientific research, particularly in the natural sciences and in their application to engineering and medicine, was intensified and accelerated by our experiences during the war. Research workers and scientific investigators from the university campus and the industrial laboratory aided materially in the magnificient record our Nation made in war production and military achievement. Returned now to the campus and the laboratory on release from wartime responsibilities and occupations, they are more research-minded than ever. Interest in research is being further stimulated by Government and industry, which are turning to universities and technological institutes for assistance in solving postwar problems.

The situation is made acute by the critical shortage of scientific and technical personnel and the need for developing a new crop, grounded in fundamentals and trained in research procedures. This new supply of qualified scientists to meet the needs of the future as well as the immediate present must come from the universities. At the same time the universities

*Adapted from a paper on the same subject read to the Association of American Universities, October 24, 1947. Dr. Palmer, a former university president (University of Chattanooga, 1938–42) who has had extensive experience in college administration, is presently conducting a comprehensive survey of university patent policies for the National Research Council.

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are expected to continue as centers of basic research.

American science faces a challenging future. Whether we are to enter upon a rich era of productive research, profiting from our wartime experiences and capitalizing on the present research-consciousness among scientists and the public generally, will depend to a large extent upon the philosophy behind our university research programs and the administration of those programs. Of direct concern to university administrators and scientists engaged in the formulation and conduct of research programs is the policy or procedure to be followed in handling the results of scientific investigation. The public welfare, educational objectives, direction of scientific thought, and the advance of knowledge are all involved.

Wide Diversity of Practice

At present there is a wide diversity of practice among educational institutions—and even at the same institution—in dealing with patentable discoveries and inventions growing out of scientific research. There is no common pattern of policy statement, administrative procedure, recognition of the inventor, determination of equities, assignment requirement, patent management plan, distribution of proceeds or protection of the public interest. Nor is there any convenient grouping according to type or size of institution, complexity of university organization or kinds of research undertaken. Existing practices vary from strictly drawn patent policies to laissez-faire attitudes and even an unwillingness to become concerned with patents.

Some institutions follow a hands-off policy, leaving to the individual inventor the responsibility for determining what disposition is to be made of the product of his research efforts. Others take the position that the institution has an interest in all research activity on the campus and have established formal patent policies or follow generally accepted practices for handling any patentable discoveries that may result. Still others observe a definite policy of not having a patent policy. However, a great many have given little or no consideration to the patent problem, despite the increasing volume of scientific investigation on the campus.

Through the years certain institutions, faced with immediate situations, have formulated more or less definitive patent policies. Yet, less than 40 such policies have been formally adopted thus far, more than half of them during the past 5 years. At a number of other institutions practices and procedures are being currently followed which, though not definitely formalized, are generally accepted as applicable to research activities throughout the institution. A few have adopted special policies or recognize general practices for dealing with those results of scientific investigation that affect public or private health. Others have developed policies and practices only with respect to sponsored research.

Many of the formalized policies and most of the prevailing practices are currently under review to meet changing postwar conditions and current considerations in the institutions. The need at this time for critical examination of the whole question of what to do with the patentable products of research is well recognized. At a number of institutions, many of which have not previously had any patent policy, faculty and trustee committees are currently studying the question, with a view to formulating new or revising existing policies.

Institutional Procedures

At many institutions each case is decided on its merits in accordance with a general policy or, in the absence of such a policy, by agreement among the parties concerned. A few feel that they discharge their responsibility by merely publishing the results of investigations or by securing patents and dedicating them to the public. Others accept full responsibility for obtaining patents and administering the patent rights in the public interest. Many exercise control over the patents by issuing licenses and accepting royalty payments either directly or through designated patent management agents.

A number of insitutions have special committees or boards to which are referred patentable discoveries, questions of the institution's interest in them, and the desirability of securing patents at the institution's expense. When recommending the specific action to be taken in each case, these committees usually also determine what recognition or reward, if any, should be given to the inventor. In many instances the inventor is required or advised to assign his rights to a patent management organization designated by the institution to represent its interest and handle the commercialization and general administration of the patent rights.

These committees and the patent management agencies usually advise and aid faculty members on

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matters of patentability, prosecution of the patent application, commercialization of the patent when issued, and general business aspects of patent management. Through these committees and the regular university administrative channels, and also through the facilities of patent management foundations, means are provided whereby, by either voluntary or required assignment of their patent rights, faculty members may be relieved of the burdensome legal and administrative problems associated with the commercial exploitation of patents.

Frequently these committees also have responsibility for determining whether the institution has any interest or equity in the discovery and for defining what action should be taken in line with the prevailing patent policy or accepted practice of the institution. In many instances it is difficult to determine the extent to which incidental or permitted use of equipment and other facilities, membership in the company of scholars assembled on the campus, professional contacts with colleagues and others connected with the institution, and the general intellectual atmosphere and surroundings contribute to the evolution of patentable ideas.

It is the usual practice for educational institutions to retain control over the publication of the results of research conducted on the campus. When an investigation is financed through outside funds, that control is frequently, but not always, exercised subject to prior consent of the sponsor and publication is withheld for a reasonable time to protect patent applications and the interests of the sponsor in commercial development. A few institutions turn over all the results to the sponsor, including publication privileges as well as patent rights, merely reserving approval of any reference to the institution or its part in the investigation. In some instances they proscribe use by the sponsor of the name of the institution in any way.

Recognition of Inventor

Some recognize the rights and interests of the inventor and share the proceeds with him, either under a prior contractual arrangement or by mutual agreement, but there is no uniformity in the division of the financial return from patents between the inventor and the institution. Even in those instances where the proportion to be given the inventor is specified in accordance with a general policy, there is a wide variation among institutions in the amount allotted to the inventor. In other institutions the inventor's share is determined in each case after consideration by a special faculty or administrative committee. A few institutions include patent provisions in their contracts of employment, in some instances for all faculty members but more often limited to members of the staff whose entire or major reponsibility is research, especially contractual research.

At most institutions the compulsory assignment of patent rights is not considered desirable, except when necessary in connection with cooperative or sponsored research. Voluntary assignment is preferred and is encouraged and facilitated through procedures and special machinery for handling patents set up within the institution. In many instances the services of an outside organization closely related to the institution and under agreement to act as its patent management agent are employed.

Most institutions require full-time research personnel and others employed on special research projects to sign patent waiver agreements covering all patentable ideas and discoveries that may result from their investigations. Such agreements are generally required of full-time research employees in state agricultural and engineering experiment stations, and also of those employed on projects conducted in or under special research institutes affiliated with educational institutions.

Few patent policies include any reference to patentable discoveries resulting from student research, except where the student is employed or receives specific fellowship aid under an industrial research contract. In general, inventions made by students, including those on academic scholarships and fellowships, are considered to be the private property of the students. The rights of the student include the right to assign or otherwise dispose of his patent rights.

Special Research Foundations

At a number of institutions, special research institutes, corporations, and foundations, either independently incorporated or closely affiliated with the institutions, have been established for the conduct and administration of sponsored research programs, as well as for the management of the patentable results of the research. Encouraged by the success, often more apparent than real, of certain of these organizations, more than 70 colleges, universities, and technological institutes have set up such agencies,

many within the past 3 years, and others are contemplating similar action. These organizations are located in all parts of the country and at all types of institutions, large and small, public and private—at endowed universities, State universities, land-grant colleges, technological institutes, and small colleges alike.

Some are integral parts of the administrative and organic structure of the institutions concerned, operating as special departments or divisions. Others are independent nonprofit foundations, separately incorporated but closely affiliated with the educational institutions and utilizing their regular personnel and facilities. A few maintain special research laboratories and separate personnel distinct from the regular teaching staffs of the institutions. Combinations of full-time services of special research workers and part-time research and supervisory services of regular teaching members are found at a number of institutions.

Many of these agencies have been set up to provide convenient means for relieving the institution's regular business and administrative staff of contractual relations with research sponsors and of patent management problems. In some instances they are also concerned with the general development of new sources of financial support for the institution itself. Still others are designed to provide machinery for conducting sponsored research activities and for handling patents, particularly where restrictive statutory provisions make it either impossible or undesirable for the institutions to perform these services themselves.

Patent Management

Patent management is a complicated business and is expensive. It requires a high degree of legal competence, administrative astuteness, and promotional zeal—a combination of talent not always readily available in an educational institution. The patent search is a specialized technical service. The preparation and processing of patent applications is exacting work for legal counsel. The administration of patent rights demands careful attention to intricate details and constant watch for infringement and interference. The exploitation and disposal of patents, through sale and licensing agreements, require salesmanship of a high order.

It is natural, therefore, that most educational institutions make every effort to avoid becoming directly involved in the intricate legal and commercial aspects of patent management. Some endeavor to accomplish this by adopting a hands-off policy and refusing to handle patents. Others, for legal or fiscal reasons, utilize separately incorporated patent management foundations, independent of but closely related to the institutions by the terms of their charters and by the membership of trustees, administrative officers, and faculty on their boards of directors. Still others have entered into agreements with Research Corporation, an independent nonprofit patent management foundation, to act as their patent management agent and to handle patentable discoveries in their behalf, with full protection of their interests and those of the inventors and the public.

A few attempts to handle patents as a part of the routine duties of already established administrative units, such as the comptroller's or business office, or through specially designated committees responsible directly to the administration or to the trustees of the university. A number have faculty committees on patents which exist primarily for the purpose of insuring that pertinent institutional regulations are observed. Often these committees serve as advisory bodies and are charged with recommending action on matters that range from the desirability of taking out a patent to the determination of equities.

There are at least three distinct equities or interests involved in patentable discoveries or inventions resulting from scientific research in an educational institution: (1) the inventor or inventors, (2) the institution, and (3) the general public; to which must be added a fourth, the sponsor or supporter of the research, in the case of sponsored or cooperative research. When further developmental work is necessary, a fifth interest may be involved, although frequently it is the same as the sponsor or supporter of the original research.

The recognition and protection of these several and diverse interests naturally complicate any individual situation. Self interest, personal rights, institutional policies, employer-employee relations, academic freedom, contractual relations, patent law, business practices, commercial competition, and the variables in individual cases are some of the elements that contribute to the problem. Nevertheless, to be equitable and effective a patent policy must provide for such recognition and protection, placing the responsibility where it can be best discharged, most expeditiously and with the minimum of burden on the regular administrative and teaching staff of the educational institution.

Fixed Fees in Land-Grant Institutions for Negroes

By EARL L. KIRCHNER*

IN HIGHER EDUCATION January 1, 1948, there was published a report on fixed fees in the land-grant colleges and universities other than those maintained primarily for Negro students in the 17 States which have separate school systems for the white and Negro races. In the following article comparable fees charged by the land-grant colleges and universities for Negroes are reported. The fees shown are those paid each year by regular full-time students for the usual college year from September to June, not including charges for room and board or deposits for individual courses.

General Considerations

Nearly all the degree work in the land-grant colleges and universities for Negroes is concentrated in agriculture, arts and sciences, business administration, education, home economics, and mechanic arts. The fees at these institutions are the same for all degree curricula regardless of the field of study.

Colleges and universities generally require that fees be paid in advance at the beginning of each semester or quarter. Most of the land-grant institutions for Negroes permit payments on a monthly basis through the school year.

Matriculation Fees

Only three of the Negro colleges charge a matriculation fee. They are Princess Anne College of Maryland, Alcorn Agricultural and Mechanical College of Mississippi, and the South Carolina State Colored Normal, Industrial, and Mechanical College. In each instance the fee is $5.

The Agricultural and Technical College of North Carolina has a $5 matriculation fee for graduate students only. Delaware State College for Colored Students, Kentucky State College, and Prairie View University have "matriculation fees" which are payable every year. They therefore do not come within the usual definition of a matriculation fee and are included in the total yearly fixed fees.

Laboratory Fees

Four of the institutions have a flat yearly laboratory fee which is a known figure. The Southern

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Total of fixed fees in land-grant colleges and universities for Negroes, 1939–40 and 1946–47, excluding laboratory fees and charges for room and board

Year, by institution	Total fixed fees		Percent increase 1946–47 over 1939–40	
	Residents	Nonresidents	Residents	Nonresidents
1	2	3	4	5
State A. & M. Inst. (Ala.):				
1939–40	$36	$36	------	------
1946–47	62	62	73	73
Ag. Mech. and Normal Coll. (Ark.):				
1939–40	42	56	------	------
1946–47	48	73	14	30
Del. State College for Colored Students:				
1939–40	8	44	------	------
1946–47	60	145	650	230
Fla. A. & M. Coll.:				
1939–40	13	33	------	------
1946–47	38	238	192	620
Ga. State Coll.:				
1939–40	35	50	------	------
1946–47	55	205	57	310
Ky. State Coll.:				
1939–40	30	50	------	------
1946–47	56	101	87	102
Southern Univ. & A. & M. Coll. (La.):				
1939–40	25	47	------	------
1946–47	21	43	−16	−9
Princess Anne Coll. (Md.):				
1939–40	51	51	------	------
1946–47	133	133	160	160
Alcorn A. & M. Coll. (Miss.):				
1939–40	34	49	------	------
1946–47	73	273	115	456
Lincoln Univ. (Mo.):				
1939–40	32	72	------	------
1946–47	37	(1)	16	------
Agric. & Tech. Coll. of N. C.:				
1939–40	49	72	------	------
1946–47	79	102	61	42
Langston Univ. (Okla.):				
1939–40	19	44	------	------
1946–47	25	(1)	32	------

Total of fixed fees in land-grant colleges and universities for Negroes, 1939–40 and 1946–47, excluding laboratory fees and charges for room and board—Continued

Year, by institution	Total fixed fees		Percent increase 1946–47 over 1939–40	
	Residents	Nonresidents	Residents	Nonresidents
1	2	3	4	5
S. C. State Colored N. I. A. and M. Coll.:				
1939–40	$60	$150	------	------
1946–47	89	259	48	73
Tenn. A. & I. State Coll.:				
1939–40	30	48	------	------
1946–47	45	270	50	462
Prairie View Univ. (Tex.):				
1939–40	[2] 55	[2] 55	------	------
1946–47	[2] 55	[2] 55	0	0
Va. State Coll.:				
1939–40	65	79	------	------
1946–47	75	110	15	39
W. Va. State Coll.:				
1939–40	54	94	------	------
1946–47	68	128	26	36
Average: (Arithmetic mean):				
1939–40	38	61	------	------
1946–47	60	146	58	140

[1] Reciprocal nonresident fee.
[2] Includes laboratory fees.

University and Agricultural and Mechanical College had a flat laboratory fee of $4.50 for 1946–47, but had none in 1939–40. Princess Anne College had a $10 yearly laboratory fee for both years. At Tennessee Agricultural and Industrial State College, laboratory fees were included as part of the maintenance fee for both 1939–40 and 1946–47. The amounts included were $15 and $30 respectively. Virginia State College included $43 in the general fees to cover laboratory fees for 1946–47. In 1939–40, laboratory fees were on an individual course basis.

Prairie View University included laboratory fees in the general fees for both 1939–40 and 1946–47, but the amount is not stated.

In order to compare the 17 institutions equitably, these laboratory fees were not included in the total fixed fees, except in the case of Prairie View where the amount is unknown.

Fees for State Residents

The accompanying table shows the very nominal fees charged State residents in the Negro land-grant colleges. The range for 1946–47 was from a low of $21 at the Southern University and Agricultural and Mechanical College of Louisiana to a high of $133 at Princess Anne College of Maryland. Four institutions increased fees of State residents by more than 100 percent, four by less than 30 percent, one remained at the 1939–40 level, while one showed a slight reduction.

Although there has been about a 60-percent average increase in the fees of State residents since 1939–40, they are still quite low, averaging only a little more than half the fees of land-grant institutions attended by white students.

Fees for Nonresidents of the State

In 1939–40 there was little difference between the fixed fees for residents and nonresidents of the State at these institutions. Indeed, the average difference was only about $18 a year. By 1946–47, this average difference had widened to about $80, owing to a 150 percent average increase in fees of nonresidents.

The largest amount of increase in the extra charge to nonresidents occurred at Tennessee Agricultural and Industrial State College where $207 a year has been added since 1939–40. Florida Agricultural and Mechanical College has added $180, and Alcorn Agricultural and Mechanical College $185.

The increase in the nonresident fees has been substantial from a percentage standpoint. Prairie View's nonresident fees remained stationary at $55, while Southern University and Agricultural and Mechanical College reduced fees slightly. If these two institutions and the two which have reciprocal nonresident fees are not considered, the average of the increases of the remaining thirteen is just over 200 percent for nonresidents of the respective States.

New Graduate School Periodical

THE FIRST ISSUE of a new campus periodical, *The Graduate School Record*, has been published at Ohio State University. Edited by Ralph L. Dewey, assistant dean of the Ohio State Graduate School, the publication is designed to serve as a means of communication among the agencies and individuals interested in graduate work at the university.

The *Record*, to be issued monthly except in Septem-

ber, will contain a variety of information, including official activities of university administrative agencies affecting the Graduate School, data on campus research agencies and cooperating institutions, notices of fellowships and scholarships at Ohio State and elsewhere, book reviews, and articles by staff members and students.

The periodical is intended primarily for campus circulation at Ohio State but will be mailed to member institutions of the Association of American Universities and to others requesting it.

Veterans Vocational Objectives

THE VETERANS' ADMINISTRATION has announced the results of a survey of the vocational objectives of the veterans in colleges and universities in the spring of 1947. Both disabled and other veterans were covered in the survey.

Disabled Veterans

The survey, as of May 1, 1947, contained a 79 percent sample of the 83,000 disabled veterans in institutions of higher learning under the Vocational Rehabilitation Act (Public Law 16).

Because the purpose of the act is to "restore employability lost by virtue of a handicap due to service-incurred disability," all the Public Law 16 trainees were taking courses leading to specific employment objectives. Engineering was the most popular objective of the disabled; it attracted more than 14,000, or 16 percent of the total. Teaching—from grade school to college levels, with three-quarters of the students learning to teach in high schools—was second, with 10,325 veterans, or 12 percent of the total. Accounting, auditing, and bookkeeping followed with a total of 9,166 disabled veteran-students.

The objectives of other groups were: 5,380 lawyers, 5,225 scientists and curators, 2,390 chemists and metallurgists, 1,585 commercial artists, 1,483 physicians, 1,302 musicians, and 1,081 social workers.

Some 120 categories of objectives were listed for students in school under Public Law 16.

Other Veterans

The Veterans' Administration examined the records of some 18,000 veteran-students enrolled under the GI bill, classifying their objectives into 18 categories ranging from agriculture to theology. It is reported that two-thirds of these students were enrolled in courses leading to definite professions, skills, and employment objectives. The remaining third were studying courses in the humanities, social sciences, philosophy, and similar fields.

Projecting the figures obtained in the sampling, the Veterans' Administration estimated that during the spring semester the number of veteran-students with professional objectives was distributed as follows: 171,885 (15 percent) engineering; 125,448 (11 percent) business administration; 73,820 (6 percent) business other than business administration; 54,762 (4.8 percent) teaching; 53,832 (4.6 percent) medicine and related subjects; 43,545, physical and natural sciences; 31,843, law; 30,035, agriculture; 14,233, music; 8,685, art and design (other than the fine arts); 8,081 journalism; 7,358, theology; 6,996, architecture; 6,152, forestry; 4,704, managerial (other than business administration); 3,740, public speaking and entertainment; 3,377, social work. Other categories, with smaller numbers of students in each, accounted for more than 55,000 veterans.

Department of Art at Minnesota

PLANS, which have been under discussion for almost two decades at the University of Minnesota, finally materialized this year with the establishment of a department of art in the college of science, literature, and the arts. Integrated in the new department of art are the fine arts courses and studio work previously offered in the school of architecture and other divisions of the institute of technology, in art education and in the college of science, literature and the arts, together with the service of the University gallery. This integration of the art department coordinates courses taught in the theory and history as well as the practice of art, and gives a central pattern to all the various art courses offered on the University campus.

Due to their specialized nature, nonstudio courses and specialized teachers' training courses in art education will still remain in the department of art education within the college of education, and home economics art courses will remain in the college of agriculture, forestry, and home economics.

Plans for the future include the elimination of duplication in the different art courses offered, and basic to the whole art program will be the new introductory course which is a combined lecture and studio course. University students interested in majoring in art can now actually specialize in one

of the following aspects: history, drawing and painting, sculpture, ceramics, weaving, handcrafts, general design, industrial design and photography.

The administration of the University gallery, which acts as both an exhibition center and study center, is transferred to the new department of art. A program is underway to integrate activities of the University gallery more closely with teaching activities and to include larger reading rooms for the study of prints, photographs and original works of art plus the coordination of University gallery exhibits with specific courses being offered.

Student YWCA Anniversary

THE SEVENTY-FIFTH ANNIVERSARY of the founding of the first student Young Women's Christian Association, at Illinois State Normal University, was observed at Normal, Ill., on November 15. The program commemorated the work of a university student, Lida Brown, who called the first meeting at Normal, on November 12, 1872, from which more than 600 student YWCA's on college and university campuses have sprung.

Alumni members of the Illinois State Normal University association and YWCA delegates from different sections of the United States, including a representative of the national YWCA office, joined with the present members of the campus YWCA and community representatives in the anniversary observance.

Following a luncheon for YWCA members, former members, and delegates, a Recognition Service was held at which new members were inducted into the Illinois State Normal University and Illinois Wesleyan University Associations. Dean Alice Lloyd of the University of Michigan spoke in Normal the same evening at a public meeting arranged by the university YWCA.

NSA Suggests Integrated Studies

THE NATIONAL STUDENT ASSOCIATION has suggested that a course of integrated studies be instituted in colleges and universities to prepare students to deal with current national and international problems. The following topics have been proposed as a basis for further study: (1) The relation of the economic status of the United States to that of the rest of the world; (2) the position of the colonial peoples; (3) the technology of modern warfare; (4) conflicting ideologies—what they are and why they exist; (5) Asia and its problem of industrialization; (6) the psychology of public opinion and propaganda; (7) atomic energy—its potential in war, in peace, and its limitations; (8) international law and organization—the position of the United Nations.

The suggestion is made that such a course might take one of various forms, such as: An interdepartmental course for which credit would be given; a seminar of interested students and faculty members (credit or noncredit); a series of lectures by resident or visiting experts.

To insure that the program is actually a reflection of a need recognized by the students themselves, the Association suggests the formation of curriculum committees in the various institutions which, although varying in structure, might be: (1) Students operating under the student government; (2) a joint student-faculty group working independently but reporting through the student government and faculty senate; (3) a faculty committee consulting the student government for the student point of view.

Student Grades at Wisconsin

A REPORT of average over-all grades achieved by the University of Wisconsin student body for the last semester of the 1946–47 school year has been released. The "grade point averages" of the students classified in four groups were: (*a*) 217 women veterans, 1.751; (*b*) 3,921 women nonveterans, 1.730; (*c*) 8,756 men veterans, 1.673; (*d*) men nonveterans (number not stated), 1.582.

The average for all students attending the University was 1.679 with grades becoming better for students in upper classes—1.380 for freshman, 1.645 for sophomores, 1.820 for juniors, and 1.976 for seniors. Women surpassed men 1.732 to 1.659.

"Grade point averages" were reported for 1,031 students living in the University's emergency housing quarters, as follows: (*a*) 235 married students without children, 1.826; (*b*) 281 married students with children, 1.788; (*c*) 515 unmarried students, 1.596.

Under the "grade point system" students who achieve A's in all their courses get a grade point average of 3, those with all B's get 2, and those with C's rate 1.

Teacher Training in High Schools and County Normal Schools

By BENJAMIN W. FRAZIER*

THERE ARE STILL six States that maintain teacher-training high schools, and two additional States that conduct county normal schools, according to reports received by the U. S. Office of Education during the fall of 1947. In three of the six States having teacher-training high schools, the curriculum does not extend beyond high-school graduation, and in the other three States, the teacher-preparatory curricula are 1 year or less in length. In the two States having county normal schools, the curricula are respectively 1 year and 2 years in length. In the total of 8 States, some 280 of these small preparatory units graduated nearly 2,000 certificated teachers in 1947.

General Characteristics

Although the characteristics of these training units vary somewhat among States, they have certain similarities wherever found. The names applied to them in various States indicate their common purpose: "Normal training (or teacher training) high schools," "teacher training (or normal training) high school departments," and "county normal schools."

The county normal schools are usually organized as independent units devoted exclusively or primarily to teacher preparation, whereas the training courses in high schools that prepare teachers are usually conducted in connection with the regular academic work of these schools. Differences between the two types of teacher-training units in many instances, however, are almost indistinguishable.

The staffs and facilities of the teacher-training high schools and county normal schools are quite small in comparison with those of State normal schools and teachers colleges. Each training unit contributes an average of between six and eight certificated teachers annually to the supply of applicants for positions in rural schools. All but a few of these training units are publicly controlled and supported. The States contribute varying amounts to supplement the county or local school funds used for their maintenance. Academic courses, as well as professional work including student teaching and observation in rural or village schools, are required in typical preparatory units.

Trend Toward Disappearance of These Schools

Despite the employment of many teachers with little or no college preparation as a result of the serious shortage of teachers, the number of teacher-training high schools and county normal schools continued a decline during the past 9 years that began more than a quarter of a century ago. Once these schools were to be found in nearly all States. As late as 1922–23, some 24 States still supported approximately 1,743 of them. These 24 States were further reduced to 12 in 1931–32, and to 8 in 1937–38. The total number of schools decreased as follows: 1922–23, 1,743; 1928–29, 1,146; and 1937–38, 530. Since 1937–38, there has been no change in the number of States having these units (see accompanying table). The total number of schools in the eight States has decreased 47 percent, however, and the number of teachers prepared by them has declined correspondingly.

The persistence of extremely short teacher-education curricula in 8 States in a day when 15 States require 4 years of college work for regularly certificated elementary school teachers contributes to the wide differences in the amount and nature of the preparation attained by teachers in different sections of the country. The low standards for preparation in some States are largely attributable to the inadequate salaries paid to rural school teachers. In 1934–35, for example, the median salary of rural white teachers in 5 States having teacher-training high schools was only $495. All of these 5 States were among the lowest fifth of the 48 States, when these were ranked on the basis of average salaries paid rural school teachers.

The persistence of teacher-training high schools and county normal schools also illustrates the remarkable vitality of publicly supported institutions of all types, as well as the persistence of educational offerings and patterns of work beyond the period they were originally designed to serve. In their day, the teacher-training high schools and county normal schools performed a service for rural schools that was adequately provided by no other

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type of institution. Their work had the guidance and support of many leaders in rural education. Prominent educators still in service recall early experiences as students or teachers in these schools. Scores of articles, bulletins, and books have been written about them. But as certification and employment requirements and standards were advanced to 2, 3, and 4 years of college preparation, and as State teachers colleges and normal schools increased their enrollments, the long decline of the local training schools began. The early demise of these schools has often been mistakenly predicted in the past. It now seems certain, however, that when the advancement of minimum standards for teachers is again resumed, the final dissolution of these county and local training units will be close at hand.

Number of teacher-training high schools and county normal schools, number of graduates, and length of preparatory courses, 1937–38 and 1946–47 [1]

State and type of school	Number of—					
	Schools		Graduates		Years in course beyond high school	
	1937–38	1946–47	1937–38	1946–47	1937–38	1946–47
1	2	3	4	5	6	7
Total, all schools	530	280	4,536	1,976	-----	-----
Teacher-training high schools						
Total	478	241	3,894	1,512	-----	-----
Iowa	171	55	[2] 1,473	273	0	0
Kansas	61	10	481	49	0	[3] 0–1
Minnesota	39	25	450	306	1	1
Missouri	16	13	[2] 285	190	0	0
Nebraska	187	137	1,149	683	0	0
Wyoming	4	1	56	11	0–1	0–1
County normal schools						
Total	52	39	642	464	-----	-----
Michigan	24	14	[4] 463	174	1	1
Wisconsin	28	25	179	290	2	2

[1] The total enrollment in 1937–38 was 9,332. The total number of graduates who were issued teaching certificates was 4,302. Both figures include estimates for two States. Data are not available for 1946–47.
[2] Number of graduates who were issued teaching certificates.
[3] Normal training in high schools is to be discontinued after July 1, 1948.
[4] Figure for 1935–36.

Arctic Study at Dartmouth

WITH THE OPENING of a lecture series in October by the noted Arctic explorer, Vilhjalmur Stefansson, Dartmouth College, inaugurated a program of Arctic study. The objectives of the program are: (1) To create an awareness of the Arctic and its role in the world today; (2) to promote an understanding of the Arctic as a new frontier of study and development; and (3) to furnish practical experience in training and instruction of living techniques and the use of polar equipment.

The recent appointments to the Dartmouth College museum staffs of Dr. Stefansson as Arctic consultant and of David C. Nutt, a veteran of five Arctic expeditions, as Arctic specialist, form a nucleus for the program of organized study of the far North.

Considerations which led to the inception of this new program were: (1) The general increased post-war interest in the Arctic as a new frontier, as a source of raw materials and as a route of air travel; (2) the participation of many Dartmouth alumni, students, and faculty in Arctic activities; and (3) the proximity of the Dartmouth campus to Mount Washington and Mount Moosilauke, both of which offer opportunities to study first-hand Arctic-Alpine conditions. The tops of both mountains are above timber lines, and Dartmouth owns much of Mount Moosilauke.

During the college year Dr. Stefansson will deliver a series of four lectures on the general theme, "The Arctic, our Frontier for Peace or War." He will also conduct a series of seminars and informal talks for various campus organizations participating in the Arctic program.

For the present no academic credit is being given for work in this field. Arrangements are being made, however, for undergraduates studying geology, botany, geography, or zoology to work closely with the college museum's Arctic program staff. The hope is to interest undergraduates in the Arctic, give them some experience in living in the North, and send them on to graduate schools for further study. The college expects to work informally with the newly created Arctic Institute in Montreal, Canada.

Teaching Seminar at Oregon State College

By DELMER M. GOODE*

THE SEMINAR in college and university teaching offered at Oregon State College for 15 years has taken its present form and purpose during the past 7 years. The course recognizes the fact that a teacher becomes a good teacher chiefly by his own efforts. The seminar is conducted by a chairman whose purpose is to incite more than to instruct.

Purpose

The catalog description of the seminar is: "Aims, procedures, and evaluation in college teaching; professional relationships and interests; individual studies according to student's field." The seminar enrolls faculty members and graduate students. A good balance between the two groups is desirable.

If we think college teaching should be improved, the way to improve it must be to help the teacher improve himself, both while on the job and while preparing. The graduate school that prepares Ph. D.'s can choose its own best way to help those who plan to teach, but it will probably be a democratic, cooperative process in which the man himself, his major department, and other agencies will have a place. The college teaching seminar merely makes a contribution to the work of the graduate school. It assumes that his scholarship should extend into his teaching job—that is, he should seek detailed knowledge, skill in investigation, and powers of critical analysis in respect to his teaching as in respect to his subject of specialization.

Procedure

Each member of the seminar analyzes the job of the college teacher. Teaching aims must be clearly expressed, and be psychologically and sociologically justified by him. Appropriate procedures must be selected. If satisfactory procedures cannot be found for a particular aim, the aim becomes impractical; if wrong procedures are used, the aim cannot be achieved. Adequate evaluation must be sought at each stage of progress, by preliminary tests for example, to determine what needs to be done, and by later tests to determine what has been accomplished and what remains to be done. Interaction of aims, procedures, and evaluation is stressed.

As a basic view of college teaching is thus developed, the members of the seminar pursue individual studies. Each member of the seminar outlines a program for the quarter. He may be preparing materials for use in a teaching job; he may submit materials on punched paper or on cards, or in any form desired. He prepares an annotated bibliography on some phase of college teaching. Last spring three groups of students having common teaching interests put on joint demonstrations and prepared joint bibliographies.

Conclusion

Too much cannot reasonably be expected of a 3-hour course. But even a brief course can make a contribution to the improvement of college teaching. It is always possible that at least some members of the seminar may obtain a new vision of college teaching and determine to become the kind of teacher a true scholar may be expected to be: A self-propelled operator who knows what he is trying to do and why, knows he is using the right means to achieve his ends, and knows without pretense or self-deception that the ends he seeks are being achieved.

*Member of the Curriculum Council, Oregon State College.

Labor Fellows at Harvard

HARVARD UNIVERSITY has announced that eight United States and two foreign trade-union representatives are studying at Harvard during 1947–48 under the Trade Union Fellowship Program.

The Labor Fellows are chosen by their unions and, under a program financed jointly by the unions and Harvard University, follow a 9-month course of study which includes such subjects as labor law, collective bargaining, accounting, and human relations. Weekly and evening dinner meetings and seminars with labor, management, and government leaders are also a part of the program. Designed to give union leaders a better understanding of relations between labor and management, the program was launched in 1942 under the auspices of the Graduate School of Business Administration, Littauer School of Public Administration and the Department of Economics.

The men are selected on a basis of general intelligence, capacity for leadership, and devotion to the

labor movement. They are not required to meet scholastic standards, and the formal education of men attending the program has ranged from grade school to advanced graduate school training.

All the men have proved their ability to serve the labor movement and have records as local union officers, shop committeemen, national representatives, or labor editors. Included in this year's class are representatives of such groups as trainmen, boilermakers, steelworkers, and garment workers.

The Fellows live in the dormitories of the Harvard Graduate School of Business Administration on the Boston side of the Charles River. Since the executives from large corporations and small businesses who are attending the Advanced Management Program at the Business School also occupy these dormitories, labor and management meet frequently outside as well as in the classroom.

NEW PUBLICATIONS

Non-Government Publications

Pamphlets

The Functions of an Audio-Visual Department in a Teacher Education Institution, by the Audio-Visual Education Committee, Western Illinois State Teachers College. *Western Illinois State Teachers College Bulletin*, Vol. 26, No. 4, Dec. 1946. 67 p.

Based upon a study of audio-visual aids in teachers colleges; suggests a beginning program of such aids for teachers colleges. Topics dealt with are: Isolating the Problem; Analyzing the Problems; Suggested Procedures; Radio; and Photography. An appendix outlines a course in visual aids at the University of Colorado.

Western Illinois State College Bulletin, Vol. 27, No. 2, Sept. 1947. 60 p.

Contains three articles: The Place of the Assembly in the American College, by Irving Garwood; Western Becomes a State College, by Frank A. Beu; The Educational Exhibit, by A. A. Wellck.

General Education at Whitman College, by Charles J. Armstrong. *Whitman College Bulletin*, Vol. 51, No. 1, July 1947. 24 p.

Address to the Pacific Northwest Conference on the Arts and Sciences, Cheney, Wash., Apr. 8, 1947. Describes the plan of general education adopted by the Whitman College faculty in 1946, which is being implemented as circumstances permit.

The Universities of Paraguay and Uruguay, by Theodore Apstein and Theo R. Crevenna. Washington, D. C., Division of Intellectual Cooperation, Pan American Union, 1947. 68 p. (mimeo) 50 cents.

This is volume 7 of a series on higher education in Latin America. Describes the three institutions of higher education in Paraguay and the University of the Republic of Uruguay; contains detailed information concerning such matters as administration, support, degrees, curricula, publications, student organization, and fees.

Books

Continuity in Liberal Education in High School and College. Stanford, Calif., Stanford University Press, 1947. 93 p. $2.00.

Report of the Fourth Annual Conference held by the Stanford School of Humanities, May 23–26, 1946. Discusses the aims of a liberal education and presents reports on the various fields of the humanities. The purpose of the Conference was: (1) To analyze the contributions high-school courses in English, foreign languages, history and social studies, mathematics, and science can make to the liberal education of all high-school students; and (2) to explore the relationships between the study of these subjects in secondary and higher education.

Daniel Coil Gilman, Creator of the American Type of University, by Abraham Flexner. New York, Harcourt, Brace & Co., 1946.

A book about the first president of Johns Hopkins University; describes his experience, his equipment, his achievement, and his technique.

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